

REMARKS

I. PRELIMINARY REMARKS

Claim 35 has been amended. No claims have been canceled or added. Claims 1, 3, 5-15, 17, 19-32 and 35-41 remain in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

Claim 35 has been objected to. Applicant respectfully submits that the objection has been obviated by the amendment to claim 35 and should be withdrawn.

Submitted herewith are proposed drawing changes marked in red. These drawing changes are intended to augment the Examiner's understanding of the inventions disclosed in the application and to correct a typographical error. More specifically, in Figures 7-10, the drawings have been amended to more clearly indicate that the metal fiber layers 32, 34 and 36 include metal fibers 32a, 34a and 36a and resin pre-impregnated fiberglass sheets (*or "scrim cloth"*) 32b, 34b and 36b, as illustrated in Figure 3. [Note also the specification at, for example, page 6, lines 12-14.] Additionally, in Figure 10, metal fibers 32a, 34a and 36a were originally incorrectly identified by reference numerals 32b, 34b and 36b and this error has been corrected. Upon approval, formal drawings incorporating such corrections will be submitted in accordance with the procedures set forth on PTO form 948.

Finally, with respect to the comments in paragraph 14 of the Office Action (lines 1-5), the Examiner's attention is respectfully directed to footnote 1 on page 6 of the amendment dated March 27, 2002.

II. OBJECTION UNDER 35 U.S.C. § 132

A. The Objection

The amendment dated March 27, 2002 has been objected to for purportedly introducing new matter. The objection is respectfully traversed.

B. The Application as Filed

The present application discloses a variety of golf club shaft configurations. Referring first to Figure 3, which is reproduced below for the Examiner's convenience, one embodiment of an invention disclosed in the present application includes a plurality of metal fiber layers 32, 34 and 36. The specification states that "the metal fiber layers 32, 34 and 36 are preferably pre-preg sheets formed by winding the metal fibers 32a, 34a and 36a onto resin pre-impregnated fiberglass sheets (or "*scrim cloth*") 32b, 34b and 36b." [Specification at page 6, lines 12-14.] The exemplary shaft illustrated in Figure 3 also includes groups of layers of fiber reinforced resin composites. The layer groups are identified by reference numerals 24, 26, 28 and 30.

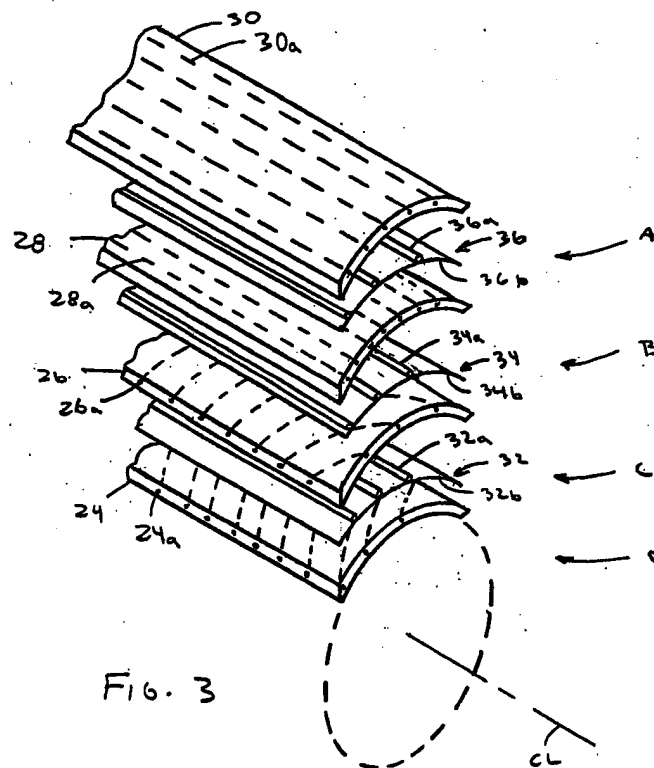
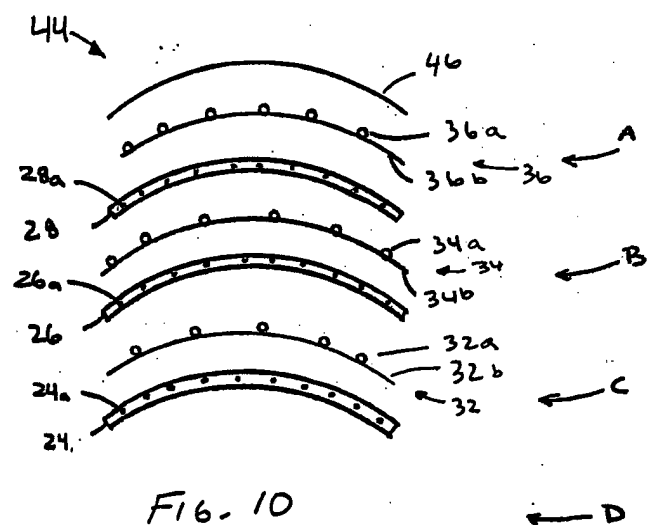
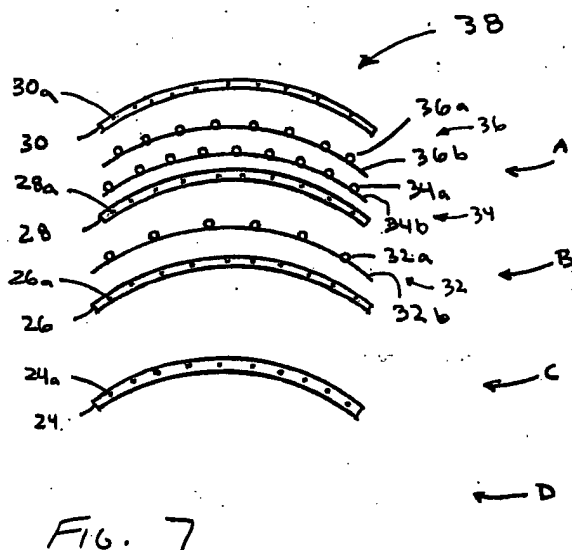


Figure 3 of the Present Application

The specification states that the "[m]etal fiber layers 32, 34 and 36 may be relocated relative to the fiber reinforced resin layer groups 24, 26, 28 and 30 and relocated relative to one another." [Specification at page 6, lines 25-28.] To that end, and referring to Figure 7, the corrected version of which is reproduced below for the Examiner's convenience, one embodiment of an invention disclosed in the present application includes a metal fiber layer 36 over a metal fiber layer 34. The metal fibers layers include metal fibers 34a and 36a and resin pre-impregnated fiberglass sheets (*or* "scrim cloth") 34b and 36b. So arranged, the metal fibers 34a are located between the scrim cloths 34b and 36b.



Figures 7 and 10 of the Present Application

Referring to Figure 10, the corrected version of which is reproduced above for the Examiner's convenience, one embodiment of an invention disclosed in the present application includes an outer metal fiber layer 36 and an outer-most layer 46 over the metal fiber layer 36. The outer-most layer 46 consists of one or more resin pre-impregnated fiberglass sheets. [Specification at page 10, lines 5-13.] The metal fiber layer 36 includes metal fibers 36a and a resin pre-impregnated fiberglass sheet 36b. The application also clearly indicates that "scrim cloth" is one example of a resin pre-

impregnated fiberglass sheet that may be incorporated into the present inventions. [Specification at page 6, line 14.] As such, applicant respectfully submits that sheet 36b and outer-most layer 46 may each be "scrim cloth."

C. Claim-by-Claim Discussion of the Objection

Each claim includes a number of elements in combination. The patentability of each claim stems from the combination itself, rather than from the presence of any particular element(s) in the claimed combination. Nevertheless, in the interest of brevity, the discussion below will focus on only those elements of the claimed combinations which were referenced in paragraph 2 of the Office Action.

Turning first to independent claim 1, exemplary implementations of the invention defined thereby are illustrated in claims 7 and 10. The shaft disclosed in Figure 7 includes a resin pre-impregnated fiberglass sheet 34b, a resin pre-impregnated fiberglass sheet 36b, and metal fibers 34a therebetween. Of the resin pre-impregnated fiberglass sheets illustrated in Figure 7, sheet 36b is the outer-most sheet and sheet 34b is, by definition, an inner sheet. The shaft disclosed in Figure 10 includes a resin pre-impregnated fiberglass sheet 36b, a resin pre-impregnated fiberglass sheet 46, and metal fibers 36a therebetween. Of the resin pre-impregnated fiberglass sheets illustrated in Figure 10, sheet 46 is the outer-most sheet and sheet 36b is, by definition, an inner sheet. Additionally, as discussed above, ***the application discloses that a pre-impregnated fiberglass sheet may be "scrim cloth."***

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Exemplary implementations of the invention defined by independent claim 19 are illustrated in Figures 7 and 10. The shaft disclosed in Figure 7 includes a resin pre-impregnated fiberglass sheet (or "scrim cloth") 34b over a group of resin layers 28, a resin pre-impregnated fiberglass sheet (or "scrim cloth") 36b, and metal fibers 34a therebetween. Of the resin pre-impregnated fiberglass sheets illustrated in Figure 7, sheet 36b is the outer-most sheet (or "scrim cloth") and sheet 34b is, by definition, an inner sheet (or "scrim cloth"). The shaft disclosed in Figure 10 includes a resin pre-impregnated fiberglass sheet (or "scrim cloth") 36b over a group of resin layers 28, a resin pre-

impregnated fiberglass sheet (or "scrim cloth") 46, and metal fibers 36a therebetween. Of the resin pre-impregnated fiberglass sheets illustrated in Figure 10, sheet 46 is the outer-most sheet (or "scrim cloth") and sheet 36b is, by definition, an inner sheet (or "scrim cloth").

Exemplary implementations of the inventions defined by claims 36 and 37 are illustrated in Figures 7 and 10. [The discussions concerning independent claims 1 and 19 are incorporated herein by reference.] Referring first to Figure 10, with respect to limitations set forth in claims 36 and 37, the specification states that "the metal fibers 36a ... will be visible through the resin pre-impregnated fiberglass sheet(s) 46." [Specification at page 8, lines 8-11.] Additionally, as discussed above, ***the application discloses that a pre-impregnated fiberglass sheet may be "scrim cloth."*** With respect to Figure 7, the specification states that "[t]he outer-most fiber reinforced resin layer group in any of the other exemplary embodiments described herein may also be replaced with one or more resin pre-impregnated fiberglass sheets." [Specification at page 8, lines 11-13.] The phrase "other exemplary embodiments" refers to embodiments other than that illustrated in Figure 10.

Exemplary implementations of the invention defined by independent claim 38 are illustrated in Figures 7 and 10. The shaft disclosed in Figure 7 includes an inner resin pre-impregnated fiberglass sheet (or "scrim cloth") 34b over a group of resin layers 28, an outer resin pre-impregnated fiberglass sheet (or "scrim cloth") 36b, and metal fibers 34a therebetween. The shaft disclosed in Figure 10 includes a resin pre-impregnated fiberglass sheet (or "scrim cloth") 36b over a group of resin layers 28, a resin pre-impregnated fiberglass sheet (or "scrim cloth") 46, and metal fibers 36a therebetween.

Exemplary implementations of the invention defined by claim 39 are illustrated in Figures 7 and 10. [The discussion concerning independent claim 38 is incorporated herein by reference.] Referring first to Figure 10, with respect to limitations set forth in claim 39, the specification states that "the metal fibers 36a ... will be visible through the resin pre-impregnated fiberglass sheet(s) 46." [Specification at page 8, lines 8-11.] Additionally, as discussed above, ***the application discloses that a pre-impregnated fiberglass sheet may be "scrim cloth."*** With respect to Figure 7, the specification

states that "[t]he outer-most fiber reinforced resin layer group in any of the other exemplary embodiments described herein may also be replaced with one or more resin pre-impregnated fiberglass sheets." [Specification at page 8, lines 11-13.] The phrase "other exemplary embodiments" refers to embodiments other than that illustrated in Figure 10.

Exemplary implementations of the invention defined by claim 39 are illustrated in Figures 7 and 10. [The discussion concerning independent claim 38 is incorporated herein by reference.] Turning to the specifics of claim 41, the metal fibers 34a are the only structures between resin pre-impregnated fiberglass sheet (or "scrim cloth") 34b and resin pre-impregnated fiberglass sheet (or "scrim cloth") 36b in the exemplary implementation illustrated in Figure 7. Turning to the exemplary implementation illustrated in Figure 10, the metal fibers 34a are the only structures between resin pre-impregnated fiberglass sheet (or "scrim cloth") 36b and resin pre-impregnated fiberglass sheet (or "scrim cloth") 46.

D. Conclusion

As illustrated above, the claims presented in the amendment dated March 27, 2002 were fully supported by the application as filed. The objection under 35 U.S.C. § 132 is, therefore, improper and should be withdrawn.

III. PATENTABILITY REJECTIONS

A. The Rejections

Claims 1, 3, 5, 7-11, 17 and 36 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Lauraitis and Roy patents.

Claims 1, 5 and 6 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Lauraitis and Jackson patents.

Claims 1 and 11-14 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Lauraitis and Takezawa patents.

Claims 1 and 15 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Takemura and Roy patents.

Claims 1 and 38-41 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Fenton and Roy patents.

Claims 19-22, 24-32 and 37 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Takezawa and Lauraitis patents.

Claim 23 has been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Takezawa, Lauraitis and Jackson patents.

The rejections under 35 U.S.C. § 103 are respectfully traversed. Reconsideration thereof is respectfully requested.

B. The Cited References

The Lauraitis patent discloses a shaft including a number of conventional fiber reinforced resin layers. The fibers within each Lauraitis layer are unidirectional.

The Roy patent discloses a shaft including five unidirectional plies (numbered 10, 20, 30, 44 and 54).

The Jackson patent discloses shafts including a number of conventional fiber reinforced resin layers. The fibers within each Jackson layer are unidirectional.

The Takemura patent discloses shafts including a number of conventional fiber reinforced resin layers. The fibers within each Takemura layer are unidirectional.

The Fenton patent discloses a golf club shaft including an inner section 13, tip and butt reinforcing plies 19 and 21, a fiber reinforced layer 23 and a two layers of resin reinforced with fiberglass fibers (note Figure 5). The fibers in each layer, whether carbon or fiberglass, are unidirectional.

The Takezawa patent discloses a variety of hybrid prepreg sheets. The sheets include resin reinforcing fibers 2 (such as carbon fibers) and a plurality of additional foreign fibers 6. The fibers in each Takezawa sheet are unidirectional.

C. Discussion

At the outset, applicant notes that the Examiner specifically stated that “[i]t is agreed that the prior art does not disclose scrim cloth.” [Office Action at page 12.] Applicant has interpreted this statement as meaning that the prior art does not disclose the claimed combinations of elements which include, *inter alia*, scrim cloth. In view of the discussion in Section II above, it would appear that the claims are in condition for allowance. Nevertheless, the following is a brief discussion concerning exemplary differences between the claimed combinations and the cited references.

1. Claims 1, 3, 5-15, 17, 36 and 38-41

Independent claim 1 calls for a combination of elements including, *inter alia*, a plurality of fiber reinforced resin layers, a plurality of first metal fibers, a plurality of second metal fibers, an inner scrim cloth and an outer-most scrim cloth. Independent claim 1 also states that one of the plurality of first metal fibers and the plurality of second metal fibers is located between the inner and out-most scrim cloths. Independent claim 38 calls for a combination of elements including, *inter alia*, an inner scrim cloth over fiber reinforced resin layers, an outer scrim cloth and a plurality of longitudinally extending metal fibers located between the inner and outer scrim cloths.

The cited references fail to teach or suggest such combinations. For example, as is known to those of skill art, scrim cloth includes woven fibers that cross over one another to form the cloth within the resin. The reinforcing fibers disclosed in the Lauraitis, Takemura and Fenton patents are unidirectional. As such, there are no layers that could correspond to the claimed inner and outer (or outer-most) “scrim cloths.” The Roy, Jackson and Takezawa patents fail to remedy this deficiency.

As the cited references fail to teach or suggest the respective combinations of elements recited in independent claims 1 and 38, whether viewed alone or in

combination, applicant respectfully submits that the rejections of claims 1, 3, 5-15, 17, 36 and 38-41 under 35 U.S.C. § 103 are improper and should be withdrawn.

2. Claims 19-32 and 38

Independent claim 19 calls for a combination of elements including, *inter alia*, a plurality of resin layers, an inner scrim cloth over the plurality of resin layers, an outer-most scrim cloth, a plurality of first metal fibers located between two of the resin layers, and a plurality of second metal fibers located between the inner scrim cloth and the outer-most scrim cloth.

The cited references fail to teach or suggest such a combination. For example, as is known to those of skill art, scrim cloth includes woven fibers that cross over one another to form the cloth within the resin. All of the reinforcing fibers disclosed in the Takezawa and Lauraitis patents are unidirectional. Thus, the fact that the Takezawa and Lauraitis patents fail to teach or suggest the claimed combination of first and second metal fibers notwithstanding, the Takezawa and Lauraitis patents also fail to teach or suggest a combination of elements including metal fibers located between two scrim cloths, as defined by independent claim 19. The Jackson patent fails to remedy this deficiency.

As the cited references fail to teach or suggest the combination of elements recited in independent claim 19, whether viewed alone or in combination, applicant respectfully submits that the rejections of claims 19-32 and 38 under 35 U.S.C. § 103 are improper and should be withdrawn.

IV. CLOSING REMARKS

In view of the foregoing, it is respectfully submitted that the claims in the application are in condition for allowance. Reexamination and reconsideration of the application, as amended, are respectfully requested. Allowance of the claims at an early date is courteously solicited.

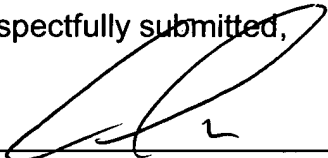
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is respectfully requested to call applicant's undersigned representative at (310) 563-1458 to discuss the steps necessary for placing the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-0638. Should such fees be associated with an extension of time, applicant respectfully requests that this paper be considered a petition therefor.

12/7/02
Date

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Respectfully submitted,



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**VERSION OF AMENDMENTS TO APPLICATION WITH
MARKINGS TO SHOW CHANGES MADE**

Claim 35 has been amended as follows:

35. (Twice Amended) A golf club shaft, comprising:
- a plurality of fiber reinforced resin layers defining a tip, a tip section, a main body section, a grip section, and a butt; and
 - a plurality of relatively heavy metal fibers extending from the tip towards [to] the butt, defining a first length and located between two of the fiber reinforced resin layers;
 - a plurality of relatively stiff metal fibers extending from the tip towards [to] the butt, defining a second length and located between two of the fiber reinforced resin layers, the second length being greater than the first length; and
 - a plurality of relatively resilient metal fibers extending from the tip towards [to] the butt, defining a third length and located between two of the fiber reinforced resin layers, the third length being greater than the second length;
- wherein at least one of the plurality of relatively heavy metal fibers, the plurality of relatively stiff metal fibers, and the plurality of relatively resilient metal fibers is located between a different two of the fiber reinforced resin layers than the other of the plurality of relatively heavy metal fibers, the plurality of relatively stiff metal fibers, and the plurality of relatively resilient metal fibers.